

Air Education and Training Command

Sustaining the Combat Capability of America's Air Force



Occupational Survey Report AFSC 2M0X1 Missile and Space Systems Electronic Maintenance

U.S. AIR FORCE

**Lt Joshua Smalley
Jun 04**

Integrity - Service - Excellence

Report Documentation Page			Form Approved OMB No. 0704-0188		
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 00 JUN 2004		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE Occupational Survey Report AFSC 2M0X1 Missile and Space Systems Electronic Maintenance				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air Force Occupational Measurement Squadron Randolph AFB, TX				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES See also ADM001674., The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 40	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



Overview



- Survey background
- Survey results
- Implications and way ahead



Executive Summary



- Heterogeneous job structure with eleven independent jobs identified
- Career ladder progression typical with emphasis on technical tasks at lower skill levels
- Career ladder documents well supported by survey data
- Job satisfaction indicators are good



Work Performed



- Maintain, operate, and supervise maintenance on ground and air missiles, unmanned aerial vehicles (UAVs), spacelift boosters, payload guidance and control systems
- Monitor, operate, and supervise operation of consoles, fault display panels, and checkout equipment
- Perform or assist malfunction analysis and repair of missile, UAV, booster, and payload systems and subsystems
- Perform laboratory research and development activities



Current Training Program



- AFSC-awarding course
 - 532 TRS, Vandenberg AFB CA
 - V3ABR2M031A-005, Missile and Space Systems Electronic Maintenance Apprenticeship Course, 63 days
 - 21 Semester hours for CCAF
 - Programmed TPR

FY04: 94 students	<u>Programmed Elimination Rate</u>
FY05: 104 students	FY04: 4%
	FY05: 4%



Current Training Program



- AFSC-awarding course
 - 532 TRS, Vandenberg AFB CA
 - V3ABR2M031B-002, Missile and Space Systems Electronic Maintenance Apprentice (ALCM/ACM) Course, 92 days
 - 30 Semester hours for CCAF
 - Programmed TPR

FY04: 74 students	<u>Programmed Elimination Rate</u>
FY05: 89 students	FY04: 8%
	FY05: 8%



Survey Background



- Last Occupational Survey Report (OSR) – September 2000
- Current survey developed – Mar - May 2003
 - Vandenberg AFB CA (Tech School) (4)
 - Vandenberg AFB CA (7)
 - FE Warren AFB WY (6)
 - Malmstrom AFB MT (5)
 - Minot AFB ND (5)
 - Cape Canaveral AFS FL (8)
 - Barksdale AFB LA (4)
 - Randolph AFB TX (6)





Survey Background



- Survey initiated to obtain data to:
 - Evaluate current classification and training documents
 - Support promotion test development
- Current survey data collected - Aug - Dec 2003
- Active Duty
 - 3-, 5-, and 7-Skill Levels





Survey Sample Characteristics



	<u>AD</u>
Assigned*	1006
Mailed Out	817
Sample	434
Usable Returns	53%

- Average TAFMS: 9 yrs 1 month
- Percent in first enlistment: 33%

* Assigned as of Aug 03



Paygrade Characteristics



Paygrade Distribution



Assigned* Sample

E-1 - E-2	-	3%	1%
E-3	-	27%	21%
E-4	-	16%	16%
E-5	-	25%	32%
E-6	-	17%	17%
E-7	-	12%	13%
E-8	-	**	0%



* Assigned as of Aug 03

** Indicates less than 1%



Command Representation



Command	Assigned %*	Sample %
AFSPC	53	55
ACC	35	35
AETC	7	7
AFMC	2	3
PACAF	2	0
OTHER	1	0

* Assigned as of Aug 03

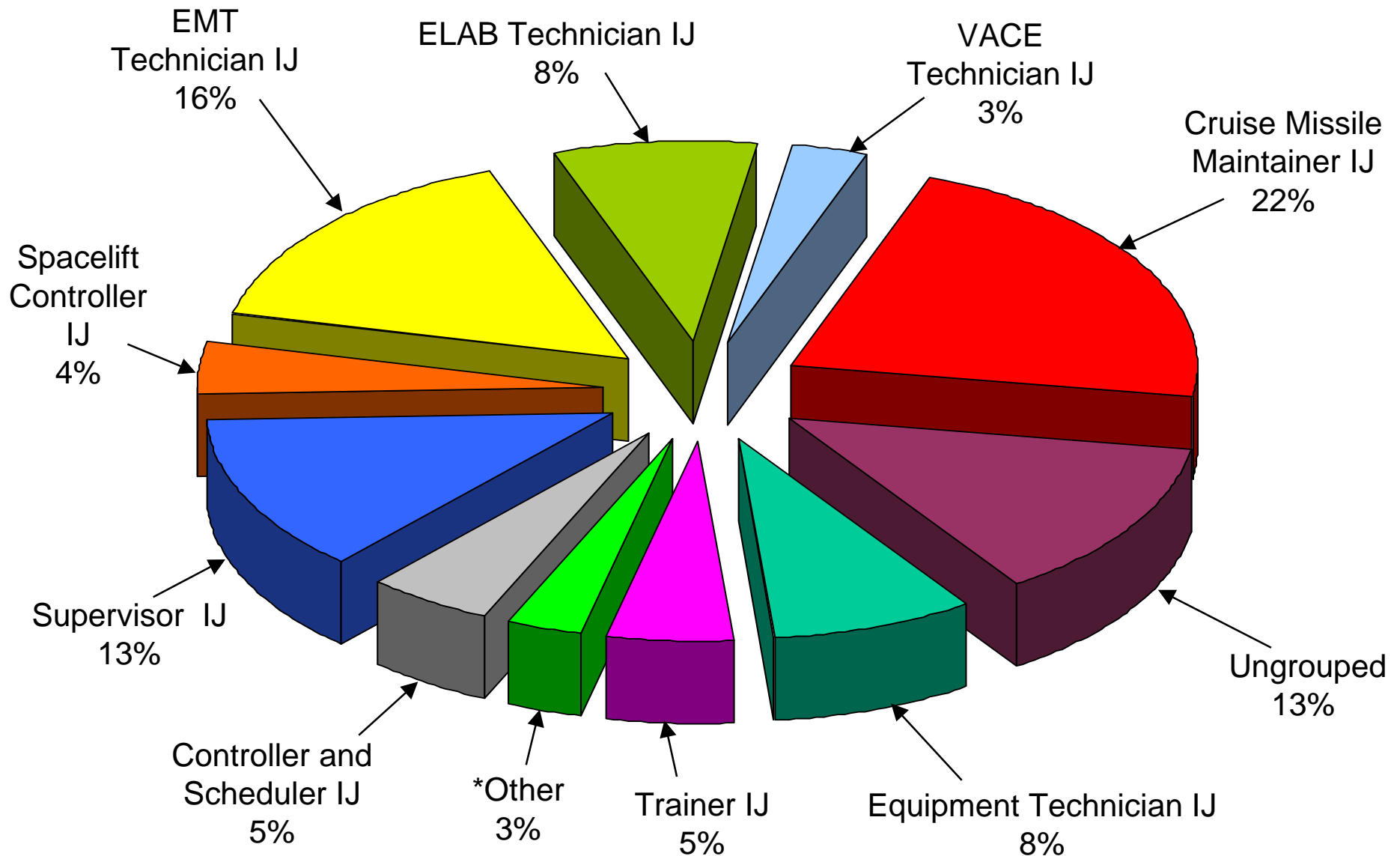


Job Structure



AETC

Sample size: 434

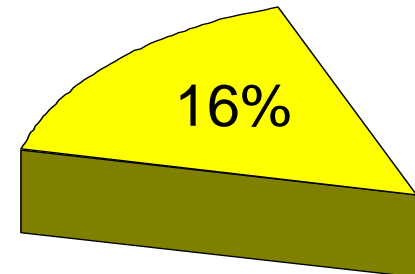
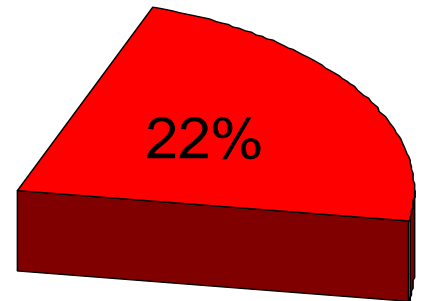




Independent Jobs



- Cruise Missile Maintainer IJ (N=97)
 - Perform cruise missile safe status checks
 - Perform cruise missile Level 1 checkouts
 - Deploy or stow cruise missile aerosurfaces
 - Remove or install cruise missile INEs
- EMT Technician IJ (N=68)
 - Inspect or maintain security pit vault doors
 - Inspect or maintain LF distribution boxes
 - Perform normal LF entry or exit procedures
 - Inspect or maintain LF storage batteries

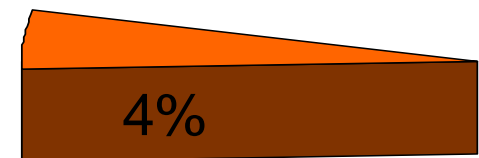
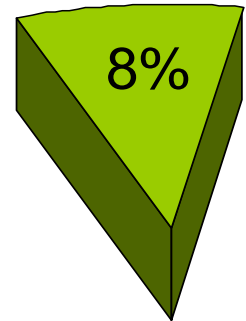




Independent Jobs



- ELAB Technician IJ (N=36)
 - Troubleshoot electronic components
 - Perform functional checks on electronic drawers
 - Inspect or maintain electronic drawers
 - Clean electronic equipment or test equipment
- Spacelift Controller IJ (N=17)
 - Verify compliance with launch countdown activities
 - Verify compliance with anomaly resolution or troubleshooting procedures
 - Verify compliance with systems tests, such as combined, ground, or integrated
 - Verify compliance with individual acceptance tests

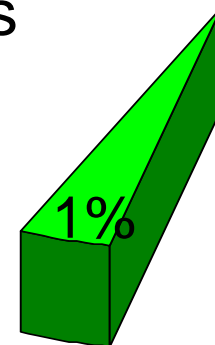
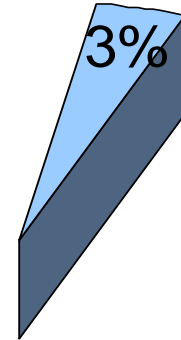




Independent Jobs



- VACE Technician IJ (N=13)
 - Inspect or maintain ESTSs
 - Calibrate cooling control units (CCUs)
 - Perform functional checks on CCUs
 - Perform fault isolations on ESTSs
 - Perform ESTS calibration certification tests
- Research and Development Technician IJ (N=5)
 - Remove or install cables
 - Remove or install experimental support equipment
 - Remove or install control system components
 - Analyze experimental results

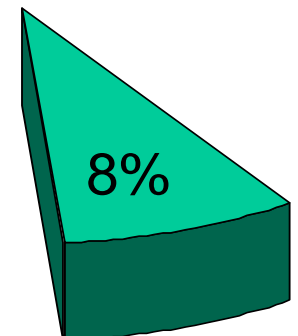
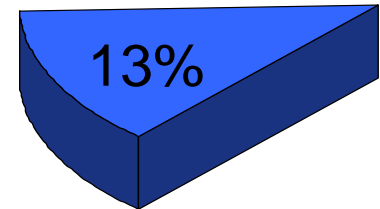




Independent Jobs



- Supervisor IJ (N=57)
 - Evaluate personnel for compliance with performance standards
 - Write recommendations for awards or decorations
 - Conduct supervisory performance feedback sessions
 - Establish performance standards for subordinates
- Equipment Technician IJ (N=35)
 - Inventory equipment, tools, parts, or supplies
 - Evaluate serviceability of equipment, tools, parts, or supplies
 - Pick up, deliver, or store equipment, tools, parts, or supplies
 - Issue or log turn-ins of equipment, tools, parts, or supplies



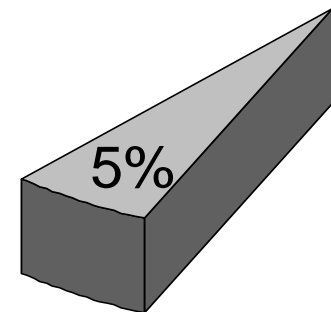
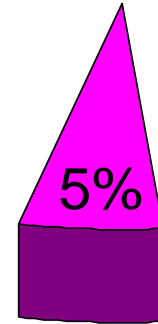


Independent Jobs



AETC

- Trainer IJ (N=23)
 - Administer or score tests
 - Personalize lesson plans
 - Brief personnel concerning training programs or matters
 - Conduct formal course classroom training
- Controller and Scheduler IJ (N=22)
 - Operate IMMP systems
 - Coordinate or document cannibalization procedures with appropriate agencies
 - Maintain reports from LFs or MAFs
 - Brief daily operations status

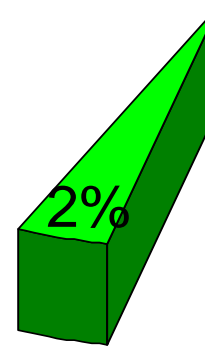




Independent Jobs



- Quality Assurance Evaluator IJ (N=7)
 - Review TO changes
 - Evaluate serviceability of equipment, tools, parts, or supplies
 - Evaluate personnel for compliance with performance standards
 - Write inspection reports





Career Ladder Progression



- 3- and 5-skill-level personnel
 - Work in the most technical jobs in the career field
 - Spend most of their time on technical tasks
- 7-skill-level personnel
 - Continue to perform technical tasks
 - However, take on supervisory, training, and administrative duties



Percent Across Specialty Jobs

DAFSC

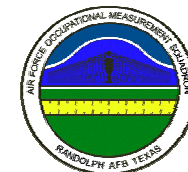


	DAFSC 2M031A (N=46)	DAFSC 2M031B (N=59)	DAFSC 2M051 (N=136)	DAFSC 2M071 (N=193)
Cruise Missile Maintainer IJ	0	95	23	5
EMT Technician IJ	37	0	24	10
ELAB Technician IJ	17	0	15	4
Spacelift Controller IJ	0	0	1	8
VACE Technician IJ	0	0	5	3
R&D Technician IJ	0	0	0	3
Supervisor IJ	0	0	1	29
Equipment Technician IJ	30	2	7	6
Trainer IJ	0	0	8	6
Controller and Scheduler IJ	0	0	7	6
Quality Assurance Evaluator IJ	0	0	2	3
Not Grouped	16	3	7	17



Career Ladder Progression

Percent Time Spent on Duties



DAFSC 2M031A (N=46)	DAFSC 2M031B (N=59)	DAFSC 2M051 (N=136)	DAFSC 2M071 (N=193)
---------------------------	---------------------------	---------------------------	---------------------------

Performing General Missile Maintenance Activities	31	28	25	12
Performing Launch Facility (LF) Maintenance Activities	19	*	8	3
Performing Launch Control Center (LCC) Maintenance Activities	7	*	4	2
Performing Operational Test Launch Activities	1	*	2	1
Performing ICBM Electronic Laboratory (ELAB) Activities	17	*	8	3
Performing Cruise Missile Maintenance Activities	0	53	12	3
Performing Missile Electric or Electronic Support Equipment Maintenance Activities	*	3	4	2
Performing Aircraft Pylon or Rotary Launcher Maintenance Activities	0	11	3	1

* Less than 1%



Career Ladder Progression

Percent Time Spent on Duties



DAFSC 2M031A (N=46)	DAFSC 2M031B (N=59)	DAFSC 2M051 (N=136)	DAFSC 2M071 (N=193)
---------------------------	---------------------------	---------------------------	---------------------------

Performing Spacelift Activities	*	*	1	7
Performing Research and Development (R&D) Activities	*	*	*	1
Performing General Administrative and Technical Order (TO) System Activities	3	1	7	13
Performing General Supply and Equipment Activities	21	1	9	7
Performing Training Activities	*	2	10	14
Performing Management and Supervisory Activities	*	*	6	31

* Less than 1%

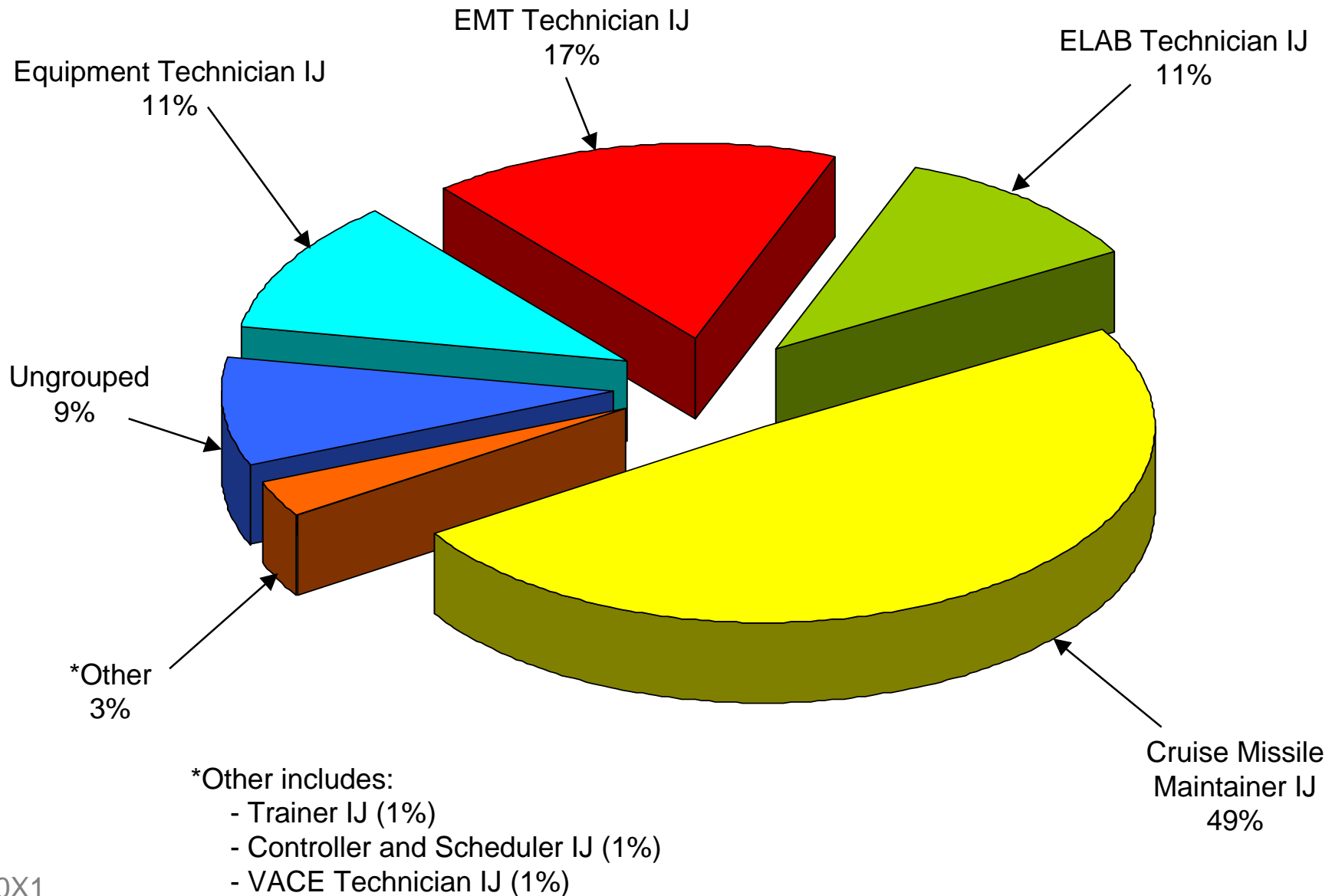


First-Enlistment Job Structure



AETC

Sample size: 142





First-Enlistment Personnel Representative Tasks



Percent
Members
Performing
(N=142)

Tasks

Perform electrostatic discharge procedures	58
Troubleshoot electronic components	58
Clean electronic equipment or test equipment	51
Perform cruise missile Level 1 checkouts	49
Perform cruise missile safe status checks	49
Deploy or stow cruise missile aerosurfaces	49
Perform AGM-86B/C/D inertial navigation element (INE) autocalibrations (ACALs)	49
Operate hot-air guns	49
Remove or install cruise missile INEs	48
Perform cruise missile forward ECS leak checks	48
Perform cruise missile fuel primings	48
Interpret missile, launcher, or pylon diagrams	48
Remove or install cruise missile engines	47
Remove or install cruise missile desiccant assemblies	47



First-Enlistment Personnel Launch Systems & Missiles



Percent
Members
Performing
(N=142)

Launch Systems/Missiles

AGM-86B, Air Launched Cruise Missile (ALCM)

48

AGM-129A, Advanced Cruise Missile (ACM)

41

WS-133AM/CDB

29

WS-133B/CDB

20

AGM-86C/D, Conventional Air Launched Cruise Missile (CALCM)

18

Launcher

17

Pylon

17

WS-118

7

Atlas V

1



Specialty Training Standard (STS) Analysis



- STS is generally supported by survey data
 - Very few STS items were unsupported
- Many technical tasks performed by 20 percent or more of members were not referenced to STS
 - These should be reviewed for possible inclusion in STS



Unsupported STS Elements



Examples

Unit	Learning Objective	Prof Code	Percent Members Performing		Tng Emp	Tsk Dif	A-ATI	B-ATI
			3A-LVL	3B-LVL				
I.13b.	Checkout (Missile Guidance Set Cooling Systems)	3b						
Task	E0260. Inspect or maintain MGS cooling systems		11	0	5.70	.89	2	N/A
II.7c(5).	Inspect RFI/EMI gaskets	3c						
Tasks	A0024. Inspect or maintain gaskets, seals, or packing		28	17	4.06	3.31	11	11
	A0111. Remove or install RFI gaskets		30	19	4.12	3.91	12	11

Mean TE Rating is 1.28, Standard Deviation is 1.18 (HIGH TE= 2.46)
Mean TD Rating is 5.00, Standard Deviation is 1.00 (HIGH TD= 6.00)



Tasks not Referenced to STS



Examples

<u>Tasks</u>	<u>Percent Members Performing</u>		<u>Tng Emp</u>	<u>Tsk Dif</u>	<u>A- ATI</u>	<u>B- ATI</u>
	<u>3A- LVL</u>	<u>3B- LVL</u>				
B0141 Inspect or maintain security pits	33	0	4.94	4.00	12	N/A
F0338 Inspect radar antenna surfaces	0	90	4.72	2.57	N/A	18
F0370 Remove or install cruise missile engine inlet flexible ducts	0	49	5.62	1.54	N/A	15
F0393 Rig AGM-86B/C/D elevons or fins	0	76	6.20	2.29	N/A	17

Mean TE Rating is 1.28, Standard Deviation is 1.18 (HIGH TE= 2.46)
Mean TD Rating is 5.00, Standard Deviation is 1.00 (HIGH TD= 6.00)



Job Satisfaction Indicators (Current vs. Previous Study)



	1-48 Months		49-96 Months		97+ Months	
	2004 (N=142)	2000 (N=154)	2004 (N=100)	2000 (N=78)	2004 (N=192)	2000 (N=311)
Job interesting	54	67	68	72	83	78
Talents well utilized	71	73	78	81	86	86
Training well utilized	87	86	83	83	81	71
Sense of accomplishment	55	68	60	64	79	74
Plan to reenlist	54	60	73	72	73	68



Job Satisfaction Indicators (AD) (Across Specialty Jobs)



	Cruise Missile Maintainer IJ (N=97)	EMT Technician IJ (N=68)	ELAB Technician IJ (N=36)	Spacelift Controller IJ (N=17)	VACE Technician IJ (N=13)	R&D Technician IJ (N=5)
Job interesting	50	80	78	88	77	100
Talents well utilized	69	90	86	82	100	80
Training well utilized	90	97	97	82	92	80
Sense of accomplishment	52	78	73	76	77	80
Plan to reenlist	61	63	78	59	85	20



Job Satisfaction Indicators (AD) (Across Specialty Jobs)



	Supervisor IJ (N=57)	Equipment Technician IJ (N=35)	Trainer IJ (N=23)	Controller and Scheduler IJ (N=22)	Quality Assurance Evaluator IJ (N=7)
Job interesting	86	46	69	68	86
Talents well utilized	88	63	96	64	100
Training well utilized	79	60	78	64	86
Sense of accomplishment	80	49	70	64	71
Plan to reenlist	69	65	78	81	86



Retention Dimensions

First-Term Airmen (N=137)



	Percent Responding	Average
Planning to Reenlist (N=77)		
Job security	62	2.56
Military-related education/training opportunities	57	2.45
Pay and allowances	53	2.49
Off-duty education and training opportunities	52	2.78
Medical or dental care for AD members	49	2.55
Planning to Separate (N=60)		
Military lifestyle	60	2.33
Location of present assignment	55	2.48
Civilian job opportunities	43	2.38
Pay and allowances	33	2.30
Esprit de corps/morale	28	2.71

Scale: 1 = slight influence, 2 = moderate influence, 3 = strong influence



Retention Dimensions

Second-Term Airmen (N=100)



	Percent Responding	Average
Planning to Reenlist (N=73)		
Job security	70	2.59
Retirement benefits	63	2.54
Medical or dental care for AD member	60	2.39
Pay and allowances	60	2.32
Off-duty education and training opportunities	59	2.28
Planning to Separate (N=27)		
Military lifestyle	44	2.08
Esprit de corps/morale	37	2.60
Civilian job opportunities	37	2.40
Location of present assignment	37	2.20
Recognition of efforts	33	2.22

Scale: 1 = slight influence, 2 = moderate influence, 3 = strong influence



Retention Dimensions Career Airmen (N=147)



	Percent Responding	Average
Planning to Reenlist (N=140)		
Retirement benefits	71	2.67
Job security	57	2.54
Pay and allowances	56	2.39
Medical or dental care for family members	41	2.62
Off-duty education and training opportunities	41	2.38
Planning to Separate (N=7)		
Civilian job opportunities	57	2.50
Pay and allowances	29	3.00
Number of PCS moves	14	3.00
Additional duties	14	3.00
Military lifestyle	14	2.00

Scale: 1 = slight influence, 2 = moderate influence, 3 = strong influence



Summary of Results



- Career ladder progression typical
 - Highly technical at 3-skill level progressing to more managerial at 7-skill level
- Career ladder documents well-supported by survey data
 - STS provides comprehensive coverage of work performed by career ladder
 - Review of some items warranted
- Job satisfaction indicators
 - Similar when compared to previous study across all TAFMS groups
 - Lower in the areas of expressed job interest and sense of accomplishment for first-enlistment members



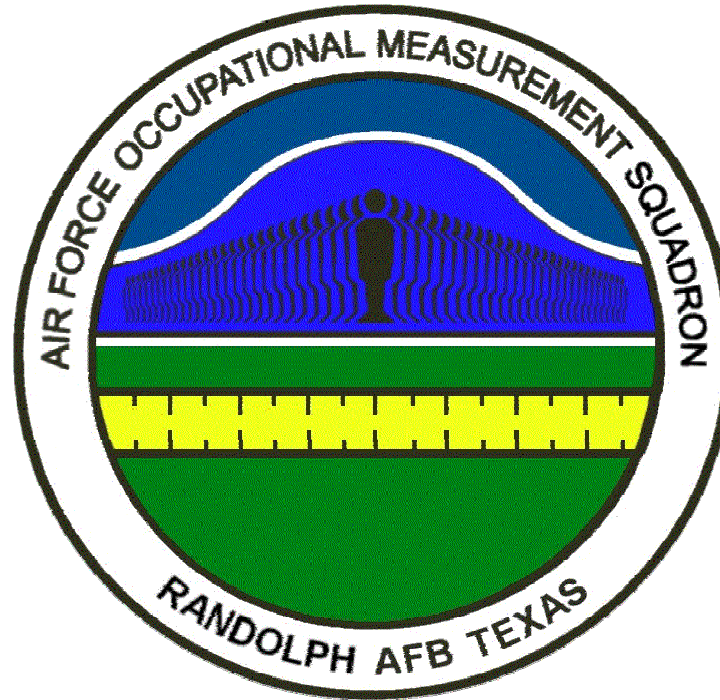
Way Ahead



- OSR Delivery Trip - scheduled for 14 Jun 04
- Utilization and Training Workshop (U&TW) - scheduled for Nov 04 at Vandenberg AFB
- Next SKT rewrite (major) - scheduled for Jan 05



Questions?



Visit our web site at:
<https://www-r.omsq.af.mil/OA/oaproducts.htm>

E-Mail: joshua.smalley@randolph.af.mil

Sustaining the Combat Capability of America's Air Force



Integrity - Service - Excellence



Back-Up Slide



Predictive Retention Indicators



- Military lifestyle
- Pay and allowances
- Bonus or special pay
- Retirement benefits
- Military-related education/training opportunities
- Off-duty education and training opportunities
- Medical or dental care for active duty member
- Medical or dental care for family members
- Base housing
- Base services
- Childcare needs
- Spouse's career
- Civilian job opportunities
- Equal employment opportunities
- Number of PCS moves
- Location of present assignment
- Number/duration of TDYs or deployments
- Work schedule
- Additional duties
- Job security
- Enlisted Evaluation System
- Promotion opportunities
- Training/experience of unit personnel
- Unit manning
- Unit resources
- Unit readiness
- Recognition of efforts
- Esprit de corps/morale
- Leadership of immediate supervisor
- Senior Air Force leadership